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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	Alan M. Jaffee	Group Art Unit:	1771
Serial No.:	10/608,790	Examiner:	Jennifer A. Boyd
Filed:	June 27, 2003		
For:	**Non-Woven Glass Fiber Mat Faced Gypsum Board And Process of Manufacture**		
Docket No.:	7302/0140-1		

Littleton, CO 80127
December 20, 2006

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

DECLARATION UNDER 37 CFR 1.132

I, Alan M. Jaffee, hereby declare that:

1. I received Bachelor of Science and Master of Science degrees in Chemical Engineering from the University of Toledo in 1977 and 1985, respectively. I have worked in the chemical industry since 1976. I have been employed by Johns Manville, Inc., Waterville, OH, since 1983, and I am currently a Technical Leader. For the last twenty-three (23) years my duties at Johns Manville have included the research, development, and application of glass fibers and non-woven products made therewith.

2. I am the inventor of the subject matter of the above-identified application Serial No. 10/608,790. I have read the application, and the Office Actions dated February 3, 2005; May 31, 2005; July 20, 2005; and December 23, 2005 in the application. I have also read the amended claims submitted with applicant's response June 21, 2005.

3. I have read each of US Patent 4,637,951 to Gill, US Patent 4,647,496 to Lehnert et al., US Patent 5,389,716 to Graves, US Patent 5,837,621 to Kajander, US Patent 6,187,697 to Jaffee et al., and US Patent 6,365,533 to Horner, Jr., et al., and US Patent Application Publication 2004/0209071 to Carbo et al. which were cited in the December 23, 2005 Office Action. I am a co-inventor of the aforementioned US Patent 6,187,697.

4. Non-woven glass fiber mats of the type typically used as a facer for conventional gypsum board was prepared at my direction and under my supervision using a wet laid mat machine in the manner disclosed in U.S. Patent No. 4,129,674. Each mat comprised glass fibers of a certain average fiber diameter and an average fiber length bonded together using a conventional modified urea formaldehyde binder applied with a curtain coating/saturation technique. Particular mats were prepared using chopped glass fibers having fiber diameters within narrow ranges centered at about 16, 15, 13, 11, and 8 μm and fiber lengths of about 25, 25, 19, 12, and 6 mm, respectively. A mat was also prepared using flame attenuated glass fiber having a fiber diameter within a narrow range centered at about 5 μm, and in which the fibers have an extended range of fiber lengths

5. Under my supervision and direction, gypsum boards were prepared in a conventional manner using the mats prepared as described in §4 above as a front facer. Board faced with the 11 μm diameter glass fiber was considerably smoother than boards faced with any other of the mats employing fibers that had larger or smaller diameters.

6. In my considered opinion, based on my knowledge and experience, it was surprising and unexpected that the 11 μm fiber board was smoother than boards made with the other mats.

7. I have read the Product Information sheet for Johns Manville Dura-Glass® 7529 glass fiber mat panel facings dated 02/02.

8. I am familiar with Dura-Glass® 7529 glass fiber mat product.

9. In the course of my duties at Johns Manville, Inc., I participated in the development of the Dura-Glass® 7529 glass fiber mat product, including the specification of the glass fibers incorporated therein.

10. In the course of my duties at Johns Manville, Inc., I had continuing awareness of and responsibility for the Dura-Glass® 7529 glass fiber mat product prior to and including June 27, 2003.

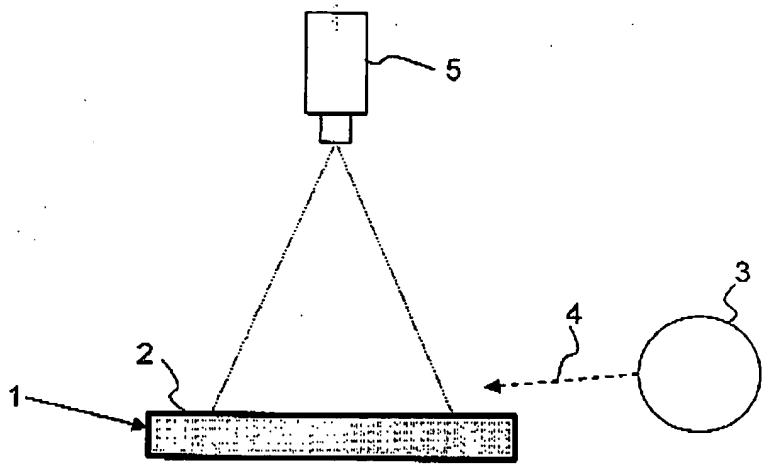
11. The glass fibers incorporated in the Dura-Glass® 7529 glass fiber mat made and sold by Johns Manville prior to and including June 27, 2003 had an average fiber diameter of 10.8 μm and an average fiber length of 3/4 inch (19 mm).

12. The binder used to bind the glass fibers in the Dura-Glass® 7529 glass fiber mat prior to and including June 27, 2003 is a modified urea formaldehyde resin binder.

13. Dura-Glass® 7529 glass fiber mat made prior to and including June 27, 2003 had a thickness of about 0.028 inches, which corresponds to a basis weight of about 1.85 pounds per 100 square feet.

14. I carried out tests of the smoothness of certain gypsum boards having a front facer made with non-woven glass fiber mats using an optical system schematically depicted by Fig. 1 below.

Fig. 1



15. Certain smoothness tests were carried out under my supervision using the following test procedure. Referring to Fig. 1, a gypsum board sample 1 approximately six inches (6") square and faced with a facer 2 is illuminated by light 4 emanating from fluorescent lamp 3 placed along one edge of board 1. The light is incident onto facer 2 of sample 1 at a low angle of incidence. Camera 5, disposed to view facer 2 in a substantially perpendicular direction and about twelve inches (12") above the facer, is used to acquire a digital image of a portion of the surface of facer 2. The image obtained using camera 5 is captured in a large number of pixels and is transferred to a computer (not shown) for further analysis using conventional commercially available digital image processing software. Each

image is analyzed using the software to determine an average of the intensity across all the pixels in the image. Also calculated is a standard deviation of the intensity values from all the pixels. For each image, a standard error is calculated by dividing the standard deviation of intensity by the average intensity.

16. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would recognize that surface asperities and irregularities in a mat create, in the presence of light incident at a grazing low angle of incidence, shadowing that gives rise to variations in the intensity of light that is scattered from the mat in a direction perpendicular to the surface, such that the greater the surface roughness, the greater the magnitude of the intensity variations.

17. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would recognize that the relative smoothness of two gypsum board samples is indicated by the standard error, determined as set forth in §§14 and 15 above, the lower value of the standard error being indicative of the smoother of the boards.

18. Set forth in the following table are samples of gypsum boards having a non-woven glass fiber mat front facer that were prepared and tested under my supervision. Results of surface roughness tests carried out on these gypsum boards in accordance with the procedure set forth in paragraphs §§14-17 above are also delineated in the table. Gypsum Board Sample #4 was prepared using a Dura-Glass® 7529 glass fiber mat representative of the mat commercially produced and sold as of June 27, 2003. Samples #1-#3 were prepared

using mats produced during a development program in my laboratory and under similar production conditions.

Sample Number	Avg. Fiber Diameter (μm)	Avg. Fiber Length (mm)	Average Intensity (arb. units)	Standard Deviation (arb. units)	Standard Error
1	13	19	1519	145	9.5%
2	11	12	1837	139	7.6%
3	8	9	1837	152	8.3%
4	11	19	1535	143	9.3%

19. In my considered opinion, based on my knowledge and experience, the lower value of standard error set forth in the foregoing table for Gypsum Board Sample #2 is indicative of a surface that is smoother than the surfaces of either Samples #1, #3, or #4.

20. I visually inspected Gypsum Board Samples #1-#4 and regard Sample #2 as having a smoother surface than either Sample #1, #3, or #4. In my considered opinion, based on my knowledge and experience, this visual testing corroborates the results of the quantitative testing set forth in the table hereinabove.

21. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the non-woven glass fiber mat art on or before June 27, 2003 would regard it as surprising and unexpected that a non-woven mat comprised of glass fiber having an average fiber diameter of 11 μm would produce gypsum board having a higher smoothness than boards made with mats having average fiber diameters of 13 and 8 μm. Instead, such a skilled artisan would have inferred that the smoothest surface would result from fabricating gypsum board with mat having the smallest fiber diameter

22. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded that glass fiber mat made with fiber having an average fiber length of 6 to 12 mm (1/4 to 1/2 inch) would be highly likely to have lower tensile and tear strengths than mat made of glass fiber having the same average diameter but a fiber length of about 19 mm (3/4 inch).

23. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded high tensile and tear strengths as being important for the production, transportation, installation, and end use of glass fiber mat-faced gypsum board.

24. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded high tensile strength of the facer as being an important contributor to the flexural strength of glass fiber mat-faced gypsum board, with high flexural strength in turn being essential for maintaining the integrity of the gypsum board during its transportation and installation.

25. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded high tear strength as being important in: (i) maintaining the integrity of glass fiber mat-faced gypsum board during its production; and (ii) assuring continuous operation of an

in-line gypsum board production process without tearouts or other failures requiring interruption of the production process.

26. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded a gypsum board faced with a mat having an inadequately smooth surface as not being amenable to painting without additional surface preparation, because surface asperities resulting from the texture of the mat would be perceptible even after painting and be aesthetically displeasing and unacceptable.

27. In my considered opinion, based on my knowledge and experience, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded the fibrous mat facer disclosed by US Patent 4,637,951 to Gill et al. ("the Gill patent") as being appointed for use in constructing sheet-form building materials in which the mat was intended to impede any penetration of fluids from the sheet core through the mat facer, based *inter alia* on col. 1, lines 27-30 and 38-39; col. 2, lines 24-29; col. 5, lines 41-48 and 62-65.

28. In my considered opinion, based on my knowledge and experience, and in view of the conclusions set forth in §27 above, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would have regarded any mat produced in accordance with the disclosure of the Gill patent as being unsuitable as facer mat to be incorporated in gypsum or hydraulic set board, the production of which necessarily comprises the extraction of required

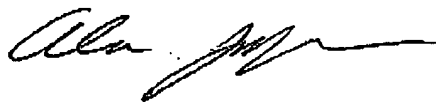
excess water in the slurry bearing the gypsum or hydraulic set material, since the permeability of the mat would have unacceptably impeded such water extraction.

29. In my considered opinion, based on my knowledge and experience, and in view of the conclusions set forth in §§27-28 above, a person having ordinary skill in the glass fiber mat art on or before June 27, 2003 would not have been motivated to look to the teaching of the Gill patent for advice concerning facer mats to be incorporated in gypsum or other hydraulic set boards, based on the minimal permeability of the mats disclosed in that reference, and accordingly would not have been motivated to combine the Gill patent with US Patent 5,837,621 to Kajander or US Patent 6,187,697 to Jaffee et al.

30. The mat provided by US Patent 6,187,697, of which I am a co-inventor, and as set forth therein, e.g. at col. 2, lines 19-31, is a multiple layer mat in which the surface layer and the body layer have composition and microstructure that are substantially different. As further set forth at col. 2, lines 52-59, and col. 7, lines 4-12, the mat provided by US Patent 6,187,697 exhibits a surface whose character results, in substantial part, from the presence of particles incorporated only in the surface layer, the particles being inhibited from passing through openings between fibers in the mat. On the other hand, the mat delineated by the instant US Application Serial No. 10/608,790 do not incorporate such particles, and instead have a surface character that is determined in substantial part by the particular blend of fibers employed in the mat.

I hereby declare that the foregoing statements made of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the above-identified application or any patent issuing thereon.

Dated: December 19, 2006

By: 

Alan M. Jaffee

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